When the initial setting is finished, in the PCA18, the head position of the sectors 20 used for the calibration processing so far having been executed (in other words, the head position of the used area) is retrieved on the DVD-R1 (Step S2). The retrieval processing will be described later by using FIG. 4.

When the head position of the used area is retrieved, the position of irradiating the optical beam B is inwardly moved from the head position by the 64 sectors, and the head position of the sectors 20 used for the next calibration processing (in other words, the head position of the non-used area) is retrieved on the DVD-R1 (Step S3). In the retrieval processing in Step S3, more specifically, the head position of the sectors 20 used for the next calibration processing is retrieved by referring to the number of the respective sectors 20 (address information) previously recorded by the pre-pit.

The position of irradiating the optical beam B is moved, according to the retrieval, by operating a tracking servomechanism, not illustrated, based on a control of the control section 4.

When the head position of the non-used area is retrieved, whether the value of the parameter X is now "0" or not is checked (Step S4).

Just after retrieving the non-used area, since the parameter X is "0" (YES; Step S4), the recording power when the setting signal is recorded last is stored in a memory, not illustrated, within the control section 4, "32" (indicating that the mark signal is to be recorded in every 32 sectors) is set in the parameter X, and in the information recording unit R, the mark signal is recorded within the sector 20 for a predetermined hour with the possible maximum recording power (Step

S5). According to the processing of Step S5, the initial mark signal is recorded at the head position of the non-used area.

The parameters X and Y are decremented by one (Step S7), and whether the parameter Y becomes "0" or not, in other words, whether one calibration processing is completed or not is checked (Steps S8).

Since the one calibration processing is not finished yet (NO; Step S8), this step will return to Step S4 again, after the recording time for one sector elapses (Step S9).

Since the value of the parameter X is not "0" in this Step S4 (NO; Step S4), the setting signal is recorded with the recording power of the setting signal increased by one step from the initial value set in Step S1 (Step S6), and this step will return to Step S7 again, where each parameter is decremented by one (Step S7), thereby repeating a series of the above-mentioned processing.

By repeating the processing from Step S1 to Step S9 as mentioned above, the second mark signal is recorded at the head position of the non-used area and at the position distant from the head position by 32 sectors (since one calibration processing is completed by using 64 sectors in the calibration processing of this embodiment, there are only two mark signals that are recorded between the one calibration processing), and the setting signal is recorded with the recording power increased by every one step for every sector up to the maximum value, in the space between the mark signals and the space between the mark signal and the end position of the non-used area.

When the recording of the setting signal for 64 sectors is completed (YES; Step S8), the head position of the recorded area (the recorded area within the PCA18 where the mark signal and the setting

signal are recorded according to the processing of the above Step S1 to Step S9) is retrieved according to the same processing as in the above-mentioned Step S2 (Step S10), and from the head position, the setting signal and the mark signal for 64 sectors are detected and reproduced, hence to create the detected signal Srf (Step S11). Further, the level thereof is obtained in the RF detecting section 3 (Step S12), and the level signal Sp is created and supplied to the control section 4.

As the waveform of the detected signal Srf at that time, as show in FIG. 5, a special detected signal SP of the maximum level corresponding to the mark signal is detected at the head position of the recorded area formed by process of step1 to step 9 and the position outwardly distant from the head position by 32 sectors, and from the area between the both positions, the detected signals Srf having the playback level corresponding to the respective setting signals outwardly increased in every sector are detected. The level signal Sp which becomes the "HIGH" level (refer to the bottom of FIG. 5) at a time of detecting the detected signal Srf having a level more than the predetermined optimum level, of these special detected signals SP and the detected signals Sfr, is supplied to the control section 4.

Based on the peak level signal Spl and the bottom level signal Sbl supplied from the level detecting section 24, when the setting signal having the peak level and the bottom level which are equal to each other, for every detected signal Sfr corresponding to the pulse width from 3T to 11T (refer to the timing T) is obtained, the recording power at that time is set in a memory, not illustrated, within the control section 4 as the optimum recording power (Step S13), and